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# Workers and Retirees Could Pool Risk With Tontine Annuities, Tontine Pensions and Survivor Funds

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Tontines are investment vehicles that combine features of an annuity and a lottery. In a simple tontine, a group of investors pools their money to buy a portfolio of investments, and, as investors die, their shares are forfeited, often with the entire fund going to the last survivor. Over the years, this last-survivor-takes-all approach has made for some great fiction. For example, in an episode of the popular television series “M\*A\*S\*H,” Col. Sherman T. Potter, as the last survivor of his World War I unit, got to open the bottle of cognac he and his fellow doughboys brought back from France (and share it with his Korean War pals).

Of course, the survivor principle—that the share of each, at death, is enjoyed by the survivors—can be used to design a variety of financial products which would benefit multiple survivors, not just the last survivor. For example, as more fully explained below, the survivor principle could be used to create a variety of retirement products including tontine annuities, tontine pensions and survivor funds.<sup>1</sup>

## The History of Tontines and Similar Financial Products

Tontines are named after Lorenzo de Tonti, the 17th-century Italian banker who came up with the idea.<sup>2</sup> Historically, governments issued tontines instead of regular bonds. In those tontines, the government would keep the tontine investors’ contributions but make high annual dividend payments to the tontine, with those payments being divided among the surviving investors. When the last survivor died, the government had no further debt obligation. For example, in 1693, the English government issued a tontine as a way to raise 1 million British pounds to help pay for its war against France. At a time when the regular bond interest rate was capped at 6%, King William’s 1693 tontine, as it is known, entitled the surviving investors to share in 10% dividend payments to the tontine for the first seven years and to 7% dividend payments thereafter. While government tontines played an important role in government finances for several centuries, they have since largely disappeared.<sup>3</sup>

After the U.S. Civil War ended in 1865, tontines emerged as a popular investment for individuals in the United States, but they fell out of favor at the beginning of the 20th century.<sup>4</sup> The problem was not with the tontine form but with embezzlement and fraud by the holders of the funds. Investigations of the insurance industry in New York led to the enactment of legislation in 1906 that all but banned tontines.

## Current Retirement Programs and Products in the United States

Social Security, annuities, defined benefit pension plans and even defined contribution pension plans have largely filled the lifetime income gap left by the demise of tontines in the United States.

### SOCIAL SECURITY

The United States established its Social Security program in 1935.<sup>5</sup> Elderly Americans can generally count on Social Security benefits to cover at least a portion of their

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1 See Michael J. Sabin, “Fair Tontine Annuity” (March 26, 2010), <http://ssrn.com/abstract=1579932>; Jonathan Barry Forman and Michael J. Sabin, “Tontine Pensions,” *University of Pennsylvania Law Review* 163, no. 3 (2015): 757–831; and Jonathan Barry Forman and Michael J. Sabin, “Survivor Funds” *Pace Law Review* 37, no. 1 (Fall 2016): 204–91.

2 See, e.g., Moshe Milevsky, *King William’s Tontine: Why the Retirement Annuity of the Future Should Resemble its Past* (New York, NY: Cambridge University Press, 2015).

3 Robert W. Cooper, *An Historical Analysis of the Tontine Principle* (S.S. Huebner Foundation Monograph Series, no. 1, Homewood, IL: Richard D. Irwin, 1972).

4 Kent McKeever, “A Short History of Tontines,” *Fordham Journal of Corporate & Financial Law* 15, no. 2 (2009): 491–521.

5 Social Security Act of 1935, Pub. L. No. 74-271.

retirement income needs. For example, in January 2018, Social Security paid retirement benefits to more than 42.6 million retired workers; the average monthly benefit paid to a retired worker was \$1,406.91.<sup>6</sup>

### ANNUITIES

Like tontines, lifetime annuities offer a way to incorporate survivorship principles into a financial product. For example, for a 65-year-old man who purchased a \$100,000 immediate fixed (lifetime) annuity without inflation protection on Dec. 1, 2016, the annual payment would be about \$6,300.<sup>7</sup> The market for annuities is well developed in the U.S., but the penetration rate is fairly low—annuities represented just 8% of retirement assets in 2016.<sup>8</sup> When given the choice, people rarely choose to buy annuities.<sup>9</sup>

### PENSION PLANS

The United States has a “voluntary” private pension system, and employers can decide whether and how to provide pension benefits for employees.<sup>10</sup> In March 2017, just 66% of U.S. private-sector workers had access to pension plans; only 50% participated.<sup>11</sup> Pension plans generally fall into two broad categories based on the nature of the benefits provided: defined benefit plans and defined contribution plans.

#### Defined Benefit Plans

The default benefit for defined benefit plans is a retirement income stream in the form of a lifetime

annuity.<sup>12</sup> For example, a plan might provide that a worker’s annual retirement benefit (B) is equal to 2% times the number of years of service (yos) times final average compensation (fac) ( $B = 2\% \times \text{yos} \times \text{fac}$ ). Under that formula, a worker who retired after 30 years of service with final average compensation of \$50,000 would receive a pension of \$30,000 a year for life ( $\$30,000 = 2\% \times 30 \text{ yos} \times \$50,000 \text{ fac}$ ).

Defined benefit pension plans operate a lot like tontines, as contributions are pooled, and lifetime pensions are paid to those who survive until retirement and then for as long as they live in retirement. However, over the past few decades, there has been a major shift from traditional defined benefit plans to defined contribution plans.<sup>13</sup>

#### Defined Contribution Plans

Unlike defined benefit plans, defined contribution plans usually make lump-sum or periodic distributions. Rather than having participants pool their investments, each defined contribution plan participant has an individual account, and, at retirement, she typically takes a lump-sum distribution rather than a lifetime pension. Moreover, when she dies, the balance in her account goes to her designated beneficiaries rather than to bolster the lifetime pensions of surviving plan participants. To be sure, defined contribution plans can offer annuities; however, relatively few plans do,

6 Social Security Administration, “Monthly Statistical Snapshot, January 2018,” released February 2018, [https://www.ssa.gov/policy/docs/quickfacts/stat\\_snapshot/2018-01.pdf](https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/2018-01.pdf).

7 Immediate Annuities, “Table 5. Single Life Annuities,” *Annuity Shopper Buyer’s Guide* 32, no. 1 (January 2017): 17, <https://www.immediateannuities.com/annuity-shopper/as-archive.html> (\$6,300 per year = 12 × an average payment of \$525 per month).

8 At the end of 2016, there were \$2.4 trillion in annuities out of a total of \$28.9 trillion in household retirement assets, or approximately 8% ( $0.0807 = \$2.3995 \text{ trillion} / \$28.9834 \text{ trillion}$ ). Board of Governors of the Federal Reserve System, *Financial Accounts of the United States: Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts: Second Quarter 2017* (Sept. 21, 2017): table L.117, <https://www.federalreserve.gov/releases/z1/20170921/z1.pdf>.

9 See, e.g., Shlomo Benartzi, Alessandro Previtero and Richard H. Thaler, “Annuitization Puzzles,” *Journal of Economic Perspectives* 25, no. 4 (Fall 2011): 143–64.

10 See, e.g., Jonathan Barry Forman and George A. “Sandy” Mackenzie, “The Cost of ‘Choice’ in a Voluntary Pension System,” in 2013 *New York University Review of Employee Benefits & Executive Compensation*, ed. Alvin D. Lurie (New York: LexisNexis Matthew Bender, 2013): 6-1–6-55.

11 U.S. Department of Labor, Bureau of Labor Statistics, “Employee Benefits in the United States—March 2017,” news release no. USDL-17-1013 (July 21, 2017): 6, table 1, <http://www.bls.gov/news.release/pdf/eb2.pdf>.

12 Defined benefit plans are generally required to provide “definitely determinable benefits . . . over a period of years, usually for life after retirement.” 26 Code of Federal Regulations § 1.401-1(b)(1).

13 See, e.g., Staff of the Joint Committee on Taxation, “Present Law And Background Relating to Tax-Favored Retirement Saving and Certain Related Legislative Proposals,” JCX-3-16 (Jan. 26, 2016): 54–57, [https://www.jct.gov/publications.html?func=download&id=4865&chk=4865&no\\_html=1at](https://www.jct.gov/publications.html?func=download&id=4865&chk=4865&no_html=1at).

and, in any event, relatively few participants elect those annuity options.<sup>14</sup>

## New Possibilities for Tontines

With the decline of defined benefit plans, new lifetime income products are needed to take their place.<sup>15</sup> In particular, this section explains how tontine annuities, tontine pensions and survivor funds could be used to provide reliable pension-like income.

### TONTINE ANNUITIES

In a simple tontine, members contribute equally to buy a portfolio of investments that is awarded entirely to the last surviving member. Alternatively, each time a member of a tontine pool dies, her account balance could be divided among the surviving members of the pool. This latter type of tontine could be used to develop new financial products that would provide reliable pension-like income.

For example, in a “tontine annuity,” the mortality gains that would arise as members of the pool die would not be divided among the survivors immediately. Instead, the mortality gains would be allocated to the individual accounts of the survivors. If a pool member is alive at the end of the month, she would be paid the accrued mortality gains in her account as a monthly “mortality-gain distribution.” On the other hand, if she is not alive at the end of the month, she would receive nothing, as the balance in her account, including any mortality gains accrued earlier in that month, would have been distributed to the accounts of the surviving members when she died.

In addition to receiving a monthly mortality-gain distribution, each survivor would also receive a portion of her original contribution at the end of each month she is alive. The resulting tontine annuities could be designed to have monthly benefits that are level throughout retirement (like an immediate, level-payment annuity) or, alternatively, that increase

gradually throughout retirement (like an immediate, inflation-adjusted annuity).

In theory, a tontine annuity could be managed by a discount broker, and no money would have to be set aside for insurance agent commissions or for insurance company reserves, risk-taking or profits. All in all, with such low fees, the benefits from a tontine annuity would closely approximate those of an actuarially fair annuity.

Moreover, unlike traditional tontines, tontine annuities could solicit new investors to replace those members who have died. Structured in this way, a tontine annuity could operate in perpetuity.

### TONTINE PENSIONS

While tontine annuities would be attractive investments in their own right, they are likely to be as underutilized as traditional retail annuities. Individual investors generally underestimate their life expectancies, and they shy away from lifetime annuities. That is where tontine pensions could be especially beneficial.

For example, an employer who wanted to provide a lifetime retirement income for its employees might set up a defined-contribution-style “tontine pension,” only instead of investing the employer contributions in stocks and bonds, the employer would invest in a tontine annuity for its employees. Each year, the employer could make contributions of, say, 10% of its employees’ salaries. Those contributions would be invested in a tontine annuity and allocated to the individual tontine pension accounts of the participants. At retirement, the balance in each participant’s tontine pension account would be paid out to her in the same manner as if she had purchased her very own tontine annuity with the employer contributions made on her behalf.

In effect, a tontine pension would be like a defined contribution plan that only pays benefits in the form of a lifetime annuity. Rather than getting lump-sum or periodic distributions, participants in this plan could

<sup>14</sup> In 2010, for example, just 18% of private industry workers in defined contribution plans had annuities available to them. U.S. Department of Labor, Bureau of Labor Statistics, “National Compensation Survey: Health and Retirement Plan Provisions in Private Industry in the United States, 2010,” Bulletin No. 2770 (August 2011): table 21, <http://www.bls.gov/ncs/ebs/detailedprovisions/2010/ebb10047.pdf>.

<sup>15</sup> To be sure, defined contribution plan sponsors could be encouraged to offer more annuity options and encourage plan participants to elect those options. See, e.g., Jonathan Barry Forman, “Removing the Legal Impediments to Offering Lifetime Annuities in Pension Plans,” *Connecticut Insurance Law Journal*, 22, no. 1 (2016): 31–141.

only get benefits based on the survivor principle. That is, the employer contributions for each participant and the investment earnings on those contributions would be held in the tontine pension and monthly tontine-pension distributions for life would be the only distributions retirees could ever receive.

### **SURVIVOR FUNDS**

Survivor funds would work like short-term tontines. Basically, survivor funds would be short-term investment funds that would favor investors who live until the end of the fund's term over those who die before then. For example, imagine that 10 65-year-old male participants each invest \$8,000 in a pool that buys 10-year Treasury bonds. At the current Treasury interest rate, that \$80,000 investment would return about \$100,000 in 10 years, and each participant (or his heirs) would get \$10,000, reflecting a pitiful 2.3% yield. But what if we instead divided that \$100,000 only among the participants who survived 10 years to reach age 75? Say eight of our 10 participants lived to 75. With a survivor fund, those eight survivors would divide the \$100,000, and the two participants who died would get nothing. In short, each survivor would get \$12,500 on his \$8,000 investment—and that works out to be

a 4.6% return, double the meager 2.3% return on the underlying zero-coupon bond.<sup>16</sup>

Survivor funds would be attractive investments because the survivors would get a greater return on their investments, while the decedents, for obvious reasons, would not care. And even if no other investors died during the term of the fund, the survivors would never get less than the return on the underlying investment. Administrative fees would be low, and the returns for survivors would be high; that would deliver exactly what today's retirees want.

### **Conclusion**

Tontines were popular in the United States in the latter part of the 19th century, but they have since disappeared. To a certain extent, lifetime annuities and traditional defined benefit pension plans took the place of tontines. Unfortunately, traditional pensions have also all but disappeared, and annuities have never really been very popular. At the same time, with increasing longevity, there is an even greater need for low-cost lifetime income products, and I believe that new low-cost, tontine-style products will soon find popularity where high-premium retail annuities have not.

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<sup>16</sup> Moreover, the returns could be even higher if the survivor fund invests in stocks instead of bonds. For example, if our hypothetical survivor fund had instead invested in a Standard & Poor's 500 index fund that earned, say, 7%, the survivors would get 9.4%. If that S&P 500 index fund earned 10%, the survivors would get 12.5%.